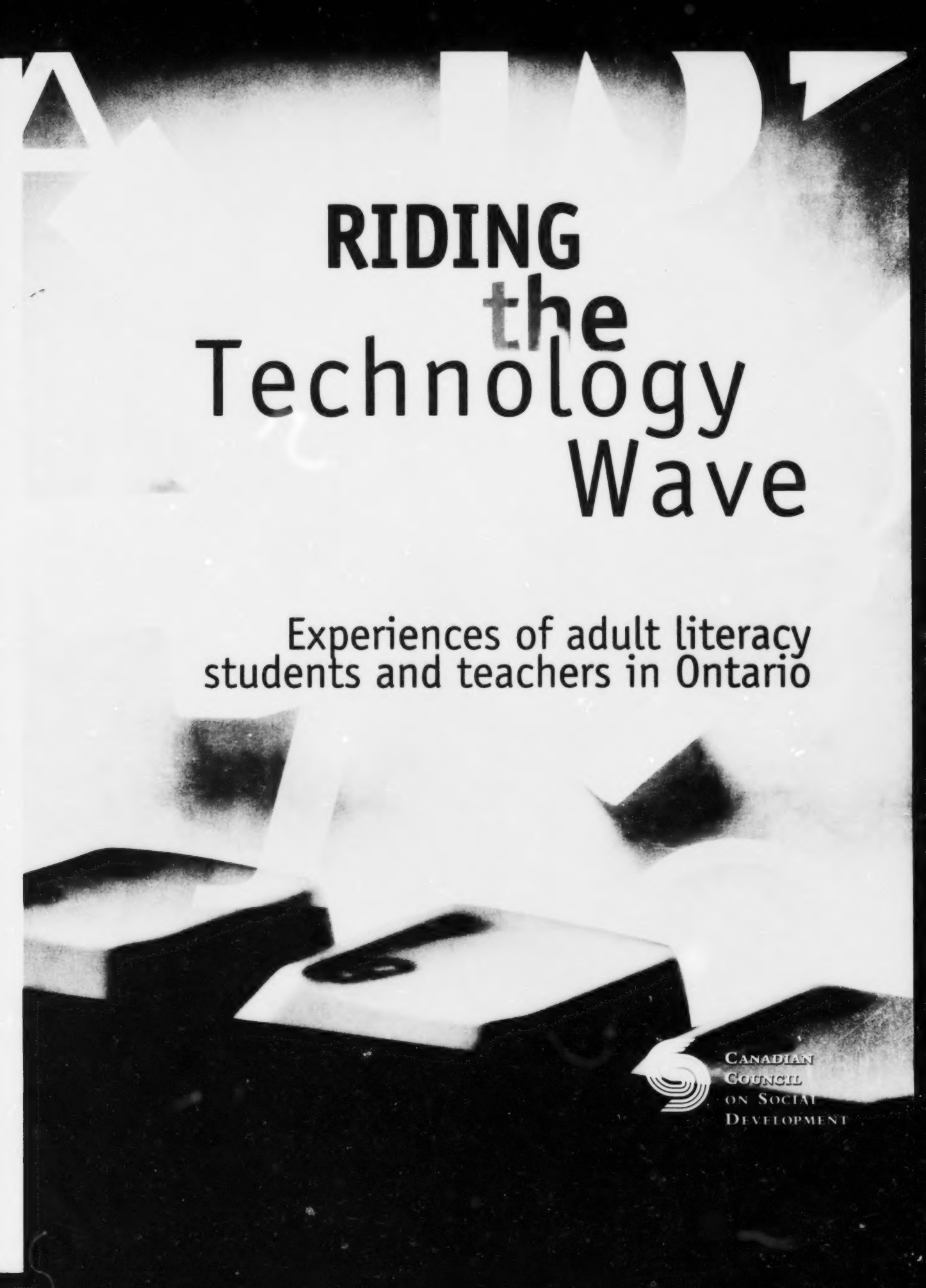

RIDING the Technology Wave

Experiences of adult literacy students and teachers in Ontario

Canadian Council on Social Development

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Riding the Technology Wave:

Experiences of adult literacy students and teachers in Ontario

by

Jean Lock Kunz & Spyridoula Tsoukalas

Canadian Council on Social Development

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The CCSD would also like to thank the many adult literacy students and teachers from the various streams of literacy programs throughout Ontario for their participation in this project. It would not have been possible without you. This report is for you.

Introduction

Objectives

Across Canada today, computers are increasingly being used as tools for teaching basic literacy skills such as reading, writing and mathematics, as well as being used by adult literacy students for self-learning. The use of computers for adult literacy is particularly evident in Ontario, which was rated by Consulting and Audit Canada as the "best-equipped province" in providing an electronic infrastructure for literacy practitioners and organizations.[1]

While putting computers into classrooms and establishing electronic networks are important first steps when integrating technologies into literacy learning, one critical – but often overlooked – factor is the response of the technology users themselves, that is, literacy teachers and students. Very few studies have evaluated the usefulness of computer technologies for literacy education from the students' and teachers' perspectives. This project therefore sought to address four issues:

1) To what extent do literacy students and teachers use computers and the Internet?

2) How do literacy students and teachers respond to computer technologies?

3) Do students and teachers feel that computer-assisted instruction is useful for reading, writing and doing math?

4) What do students and teachers think are the benefits and challenges in using computer technologies for basic adult education?

This project, supported by the Ontario Trillium Foundation, examined the extent to which adult literacy teachers and students in Ontario have access to and make use of computers and the Internet. The work was guided by representatives from different streams of literacy programs in the province, and this report presents the results of that work for the benefit of adult literacy students, teachers, and those who work in the field of adult literacy.

Methods and data sources

Data were collected through surveys of people involved in various literacy programs across Ontario and through focus group discussions. Five focus groups were held with adult literacy students in the province, and two of those groups were conducted in French. Three surveys, in both official languages, were distributed to Ontario literacy programs – two surveys for literacy students to complete and one survey for literacy teachers:

1. The survey, ***Computer Use Among Literacy Students***, posed questions to students on three main topics: 1) their access to computers and the Internet; 2) the benefits they perceived in using computers and the Internet to learn how to read, write, and do math; 3) the barriers they identified in using computers and the Internet.

2. The *Student Activity Sheet* surveyed literacy students who were at the beginning level of their basic adult education. It contained six questions covering the three main topics in the other student survey.

3. The *Literacy and Technology Survey of Practitioners* posed questions for literacy teachers on such topics as the use of computers and the Internet in their programs, the amount of institutional support the program received, the benefits and challenges they identified in using computers to teach reading, writing, and mathematics, and any suggestions they had for future improvements.

survey questions were first d among the members of dvisory group, as well as selected literacy students and teachers. The surveys were then revised and made available to all potential respondents. Surveys were distributed by mail and they were posted on the Internet through The Training Post, a website which provides training opportunities and resources for literacy workers in Ontario. In addition, the Student Activity Sheet was posted on the website of the National Adult Literacy Database (NALD).

In total, 643 responses to the student surveys were received. A majority of the respondents were enrolled in adult literacy classes offered by community-based programs (28%), colleges (27%), and school boards (21%). As well, 460 Student Activity Sheets were completed by more than 50 literacy schools and classes in Ontario.

In addition, 135 literacy teachers completed the teacher's survey. Two-thirds of the respondents had been working in the literacy field for over five years. More than half (55%) of the teachers surveyed were employed full-time in the field, and one-third (34%) were teaching part-time. Nearly half of the respondents (44%) worked in community-based programs, 26 per cent were employed by school boards, and 23 per cent taught in community colleges. Over half (55%) of the respondents taught small groups of students or provided one-on-one instruction. The majority of literacy teachers (80%) were female.

Structure of the report

Throughout this report, "students" refers to adult literacy students who were enrolled in a literacy program in Ontario. "Teachers" refers to instructors in adult literacy programs in Ontario who work for pay or on a voluntary basis. The report is organised into four sections. Section I focuses on the accessibility of computers and the Internet among Ontario literacy students and teachers. Section II examines their use of computers and the Internet, while Section III highlights what the literacy students and teachers see as the advantages and disadvantages of using computers and the Internet for adult literacy education. Section IV identifies some barriers to computer-assisted instruction. The report concludes with recommendations for future improvements in this area.

SECTION I

Access to Computers and the Internet

Highlights

This section centres on four questions:

1) How many literacy students and teachers are currently using computers and the Internet?

2) Who is likely to own a computer and/or have Internet access, among literacy students?

3) Where are literacy students and teachers likely to access computers and the Internet?

4) What types of computer facilities are available to students in different literacy programs?

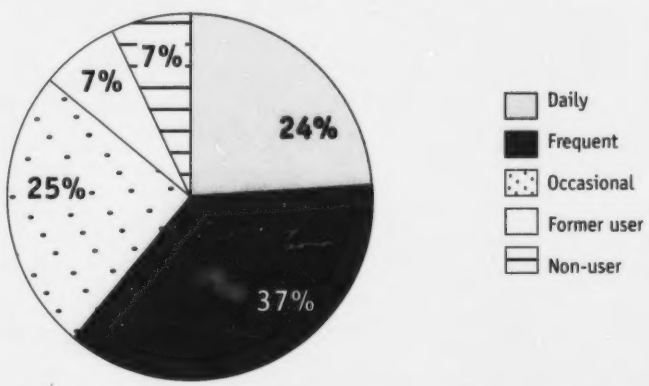
Our surveys showed that:

- More than 80% of adult students surveyed said that they were using computers, but only 60% said they used the Internet.
- Most teachers (83%) said they owned a computer, but only one in three students reported having one.
- Almost all teachers said they used the Internet, while fewer students did.
- More than half (60%) of the teachers described themselves as average computer users and 16% considered themselves to be advanced users.
- Students who said they owned a computer tended to be male, with an annual family income over $40,000, or to have children under the age of 18.
- Most schools were said to provide computer access to students, but only two-thirds of those computers had a modem.
- Nearly half (47%) of the adult literacy teachers working in classroom settings (as opposed to one-on-one settings) felt that the quality of computer access for students was inadequate.

Most adult literacy students use computers

One-quarter of the literacy students surveyed said they used computers every day. More than one-third of the students used computers several times a week, and

Computer use among literacy students



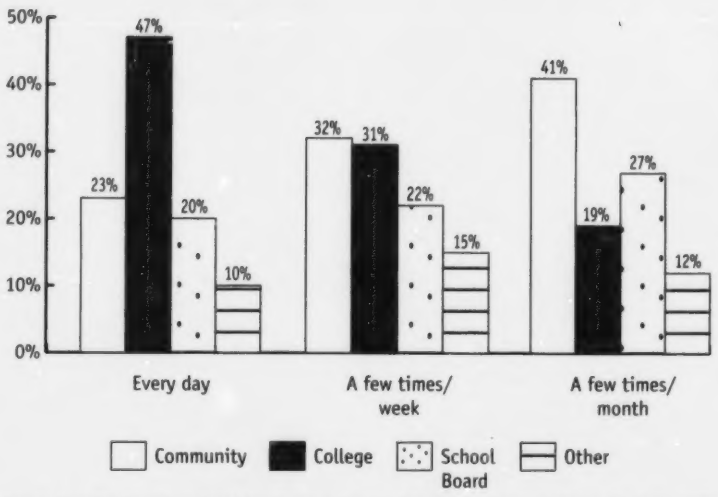
Source: Canadian Council on Social Development. *Survey of Computer Use Among Literacy Students, 1999.*

another quarter of them were infrequent users (a few times a month). Only seven per cent had never used a computer.

Computer use also differed by the type of program the students attended. Those students attending literacy programs at college were more likely to use a computer than those attending either a community or school board program.

According to their teachers, students use computers quite often. When teachers were asked how often they thought their students used computers, more than half of the teachers (58%) estimated their students' computer use at five hours a week or less. More than one in 10 teachers (13%) said that students used computers for five to 10 hours a week. Another 10 per cent believed that their students spent more than 10 hours every week using computers at school.

Students' computer use by type of literacy program

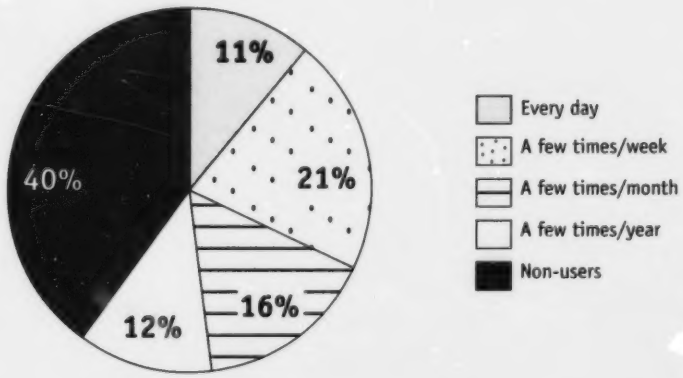


Source: Canadian Council on Social Development. *Survey of Computer Use Among Literacy Students, 1999.*

Fewer adult literacy students use the Internet

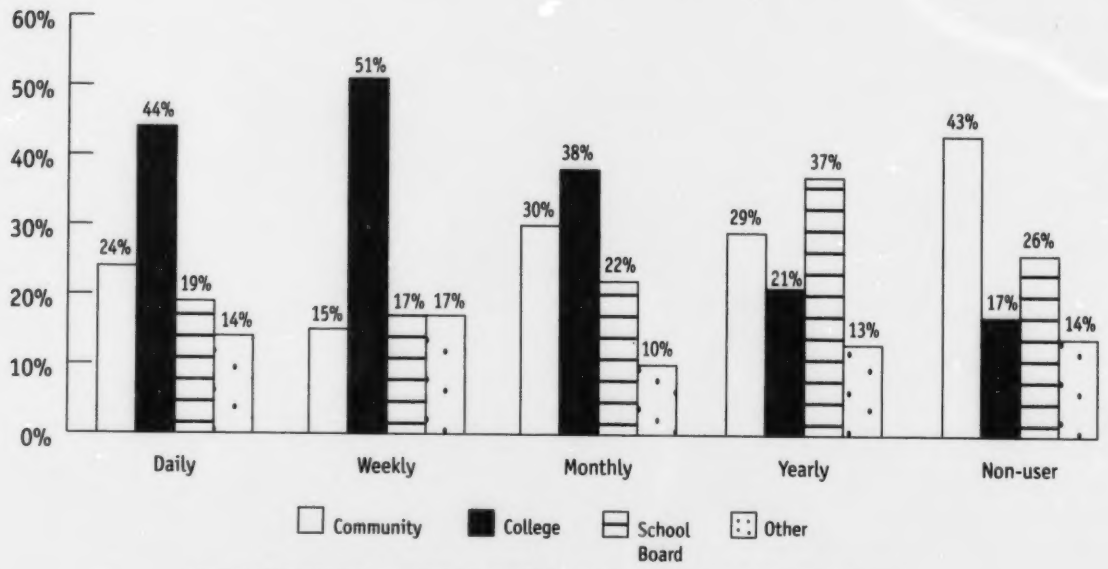
Compared to the rate of computer use, Internet use was found to be much lower. In fact, 40 per cent of literacy students said they did not use the Internet at all. Only 11 per cent said they used the Internet every day. Similar to the findings on computer use, students in college programs were more likely to use the Internet than were those in community programs.

Internet use among literacy students



Source: Canadian Council on Social Development. *Survey of Computer Use Among Literacy Students, 1999.*

Students' Internet use by type of literacy program



Source: Canadian Council on Social Development. *Survey of Computer Use Among Literacy Students, 1999.*

As for e-mail use, only 27 per cent of literacy students said they had a personal e-mail address, while five per cent shared an e-mail address with others. Nearly half of the students (48%) did not have an e-mail account. Over 16 per cent said that they did not know where they could sign up for free e-mail or where they could get free access to the Internet.

Adult literacy teachers frequently use computers and the Internet

Literacy teachers were found to be more familiar with computers and the Internet than were their students. Twenty-five per cent had been using a computer for at least five years and over 50 per cent had been using computers for more than 10 years. A majority of teachers (60%) considered themselves to be "average" computer users; 16 per cent described themselves as "advanced" users.

Compared to students, literacy teachers were also more likely to use tools such as the Internet and e-mail. Close to two-thirds of the teachers (62%) used the Internet at home. Many of them were also frequent e-mail users. More than half (56%) checked their e-mail daily, 16 per cent did so a few times a week, while only a small minority hardly checked their e-mail. Over one-third of the teachers reported corresponding with their literacy colleagues via e-mail, but less than 10 per cent e-mailed their students. This is not surprising given that nearly half of the students reported not having e-mail access.

Computer ownership is related to gender, income and family status

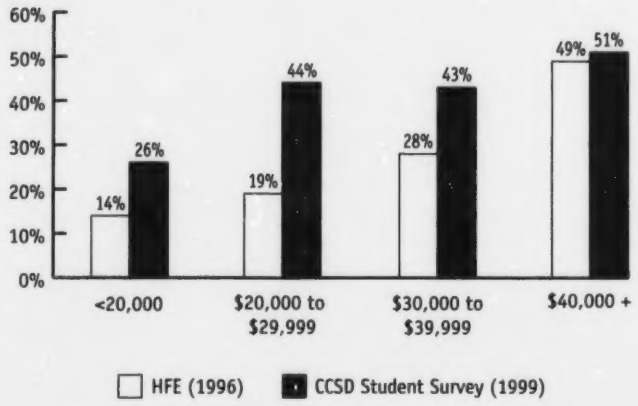
This section explores some socio-demographic factors related to computer ownership among adult literacy students. We do not focus on teachers, primarily because over 80 per cent

reported that they already own a computer, and a substantial number did not respond to the questions on age, marital status, and income.

Unlike literacy teachers, only 30 per cent of literacy students surveyed said they had a computer. Generally, male students were more likely to own a computer than were females. Forty per cent of men, compared to 31 per cent of women, owned a computer. The higher their family income, the more likely literacy students were to own a computer and use the Internet. For example, among those with an annual family income above $40,000, 51 per cent owned a computer, compared to 26 per cent of those with less than $20,000 annual income. These statistics are comparable to those found in national surveys such as the 1997 Household Facilities and Equipment survey which demonstrate that the higher one's income, the more likely one is to own a computer.

Family type also played a role in computer ownership. Those with children under 18 were more likely to own a computer. Children were an influence in computer ownership because they were more likely to use one for both school work and for fun.

Students' computer ownership by income



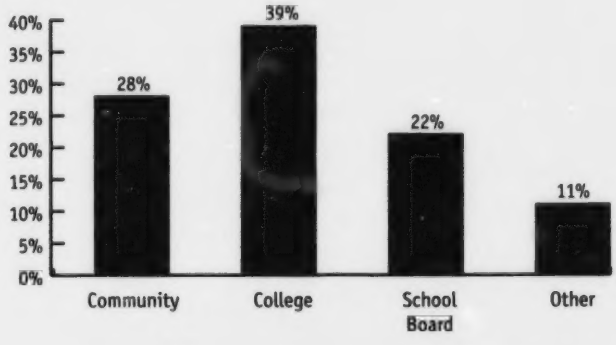
Source: Canadian Council on Social Development. *Survey of Computer Use Among Literacy Students, 1999* and Statistics Canada. *Household Facilities Expenditures* (HFE) literacy program 1997.

Parents tend to invest in their children's education, and computers represent such an investment.

We expect that as computer prices decrease, more people will be able to afford one. In fact, some of those who said they did not own a computer stated that they would like to buy one in the future. More than 20 per cent of literacy students and 10 per cent of teachers said they were planning to buy a computer. Those with children under 18 were more likely to want to purchase a computer.

There was also a link between the type of literacy program students were attending and computer ownership. A considerable number of those enrolled in college programs had a computer at home. For example, more than one-third

Students' computer ownership by literacy program



Source: Canadian Council on Social Development. *Survey of Computer Use Among Literacy Students, 1999.*

(39%) of those enrolled in a college program owned a computer, compared to less than one-third among those in community programs or in programs offered by school boards.

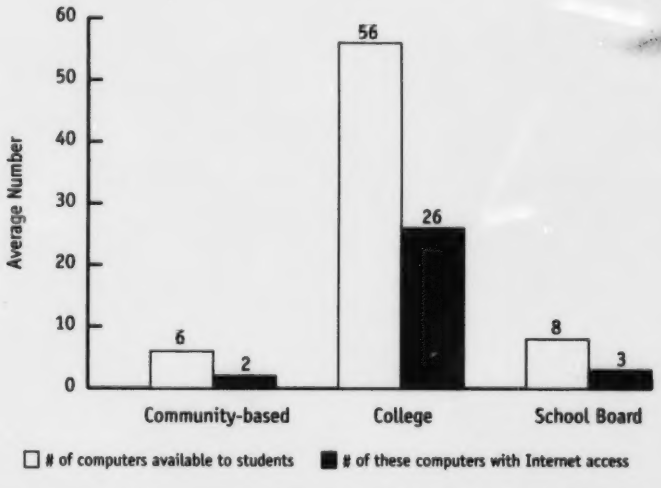
Computer ownership is important to students because it provides them with easy access to the technology. Those who own a computer are certainly more likely to spend time using it. In fact, they are more likely to be frequent users. Over 61% of daily users said they owned a personal computer, compared to only 16% of students who used computers a few times per month. Disparities in ownership were also linked to disparities in access to the Internet. As previously stated, literacy students' use of the Internet was even lower than that of computer use.

Most schools provide computer access to literacy students

Where do literacy students get access to computers? Only seven per cent of students reported using computers at work. This is not surprising given that 55 per cent of them studied full-time and 8 per cent were looking for work. Even for those who were employed either full-time or part-time, it is likely that they worked in occupations that did not require computer communications. The only other obvious location is school. A majority of students (74%) said they used computers at school. They did so by attending regular classes (47%) or on a drop-in basis. A number also said that they gained access by signing up for computer time or by asking for permission. Students who used computers a few times a month usually did so during regular classes. Nearly two-thirds of occasional users (61%) accessed computers by attending regular classes, compared to less than half among frequent or daily users.

Almost all literacy teachers (96%) said that their school provided computer facilities for students. These facilities were not used exclusively by students. In most cases (69%), the facilities were said to be shared between students and teachers. Most teachers said that students have access to 486-class or Pentium-class computers. Although most of these computers (94%) were connected to a printer, less than two-thirds (60%) had a modem. Of those students who used the Internet, more than half (58%) accessed the Internet at school. Lack of hardware may explain the lower Internet use among literacy students, as only 60% of the computers had modems. Other

Computer and Internet availability by type of literacy program



Source: Canadian Council on Social Development. *Literacy and Technology Survey of Practitioners, 1999.*

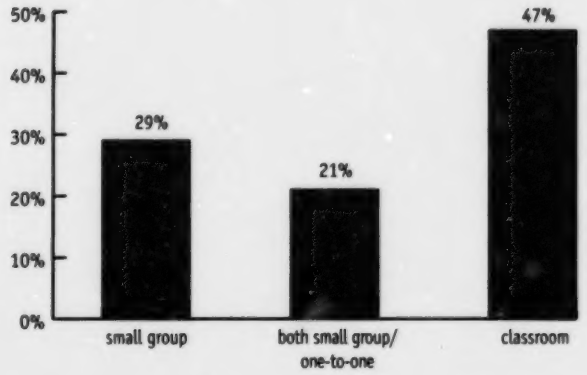
locations where students accessed the Net included public libraries (25%) and the home (23%).

Students' access to computers was far greater if they attended a literacy program offered at a college, rather than a community program or one offered by a school board. While Consulting and Audit Canada found Ontario to be the best-equipped province in providing an electronic infrastructure for literacy practitioners and organizations, 25 per cent of literacy teachers felt that the quality of students' access to computers was not adequate at the time of the survey. More than 36 per cent felt that the quality of access for students [illegible] adequate at that time, but [illegible]uld not be in the future; [illegible]8 per cent felt that the [illegible] of access was [illegible]ate at the time of the [illegible]vey and would be for the [illegible]oreseeable future.

Teachers working in a college setting were more likely to feel that access was inadequate. Nearly half of the teachers working in a classroom setting, as opposed to a one-on-one setting, felt that the quality of access for students was inadequate. Perhaps this is related to the lack of Internet access or leading-edge computer equipment.

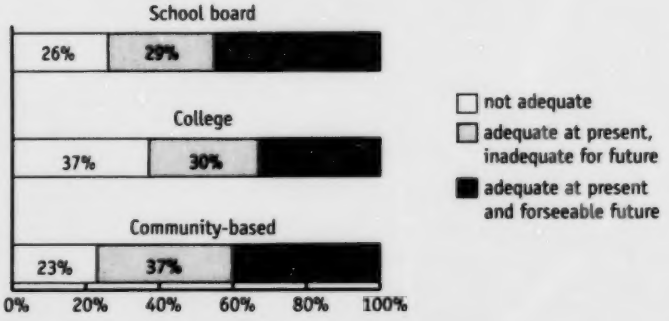
"Computer access is inadequate for my literacy students."

Per cent who agree, by the type of teaching setting



Source: Canadian Council on Social Development. *Literacy and Technology Survey of Practitioners, 1999.*

Teachers' perceptions of computer access for students, by type of literacy program



Source: Canadian Council on Social Development. *Literacy and Technology Survey of Practitioners, 1999.*

In spite of this, the majority of teachers (87%) indicated that their school provided computer facilities for staff. Most teachers said that their school provided Internet access (80%) or e-mail (78%) for staff members. In addition, teachers had access to both computers and the Internet in other locations. Over 80 per cent reported using a computer either at home or at work. Most teachers accessed the Internet at home (62%) or at work (72%). Less than half (41%) also used a public library to access the Internet.

SECTION II

Using Computers and the Internet

Highlights

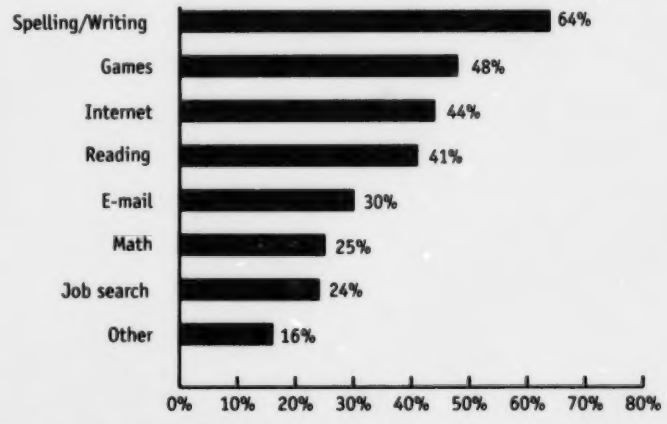
Why do literacy students and teachers use computers or the Internet? Our surveys showed the following:

- Both students and teachers primarily used computers for word processing.
- Half of the teachers and students also used computers for fun, such as playing games.
- Teachers were more likely than students to use a computer to access the Internet.
- Teachers also used computers for administrative purposes.
- Students usually learned about computers from their teachers, while teachers often got computer assistance from their co-workers.
- On average, teachers spent 32 hours per month delivering literacy instruction using a computer.
- Most literacy teachers and students used the Internet to read newspapers, search for jobs, download resources, or participate in chat rooms.
- Students seldom did their shopping or banking on-line.

Computers are used mainly for word processing

Students reported using computers for a variety of purposes, but most often for spelling and writing. This includes writing stories and preparing résumés. Spell-check proved to be one of the most popular features for students. Many students also indicated that computers helped them to produce nice reports. Forty-eight per cent of the students said that they also used computers for fun, including playing games. Only one-quarter used computers to do math. Doing math on a computer seemed to create concern for some students. They were more fearful of making irreparable mistakes. Several students said they were concerned about not knowing what to do in the event that they accidentally struck a wrong key.

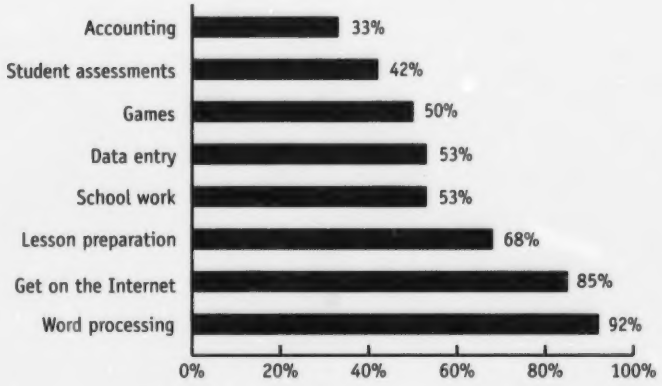
Literacy students use computers for...



Source: Canadian Council on Social Development. *Survey of Computer Use Among Literacy Students, 1999.*

Even teachers reported that their primary use of computers was for word processing. However, unlike their students, literacy teachers were more likely to use computers to access the Internet. More than eight in 10 literacy teachers used computers for Internet access, but less than half of the students reported doing so. This is not surprising since most teachers had computers that were connected to the Internet. A significant number of teachers also used computers for lesson preparation, other related school work, accounting, and student assessments. Similar to students, nearly half of the literacy teachers used computers for fun, such as playing games.

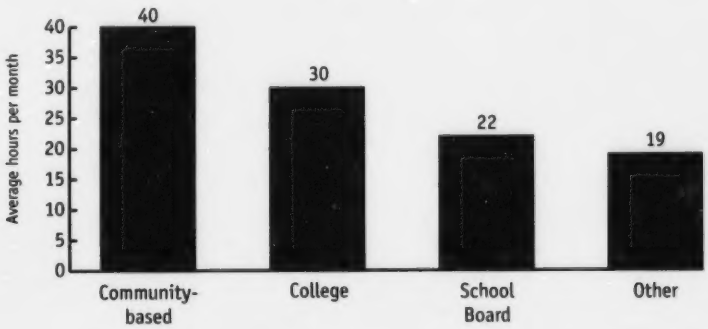
Literacy teachers use computers for...



Source: Canadian Council on Social Development. *Literacy and Technology Survey of Practitioners, 1999.*

On average, teachers spent 32 hours per month on literacy instruction using a computer. The number of hours spent on computer-based literacy instruction seemed to vary across programs. Overall, those in community-based programs spent more hours on literacy instruction using computers than others.

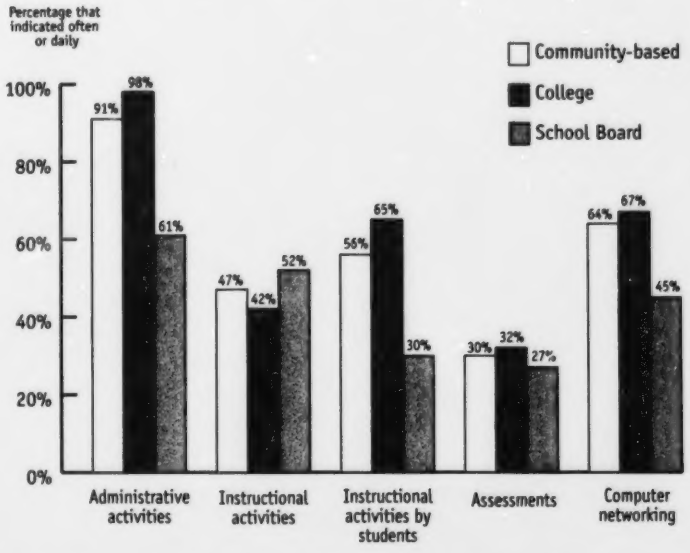
Estimated number of hours of literacy instruction using computers



Source: Canadian Council on Social Development. *Literacy and Technology Survey of Practitioners, 1999.*

When literacy teachers were asked about their computer use at school, the primary uses were administrative in nature. Again, activities varied by type of program. School board-based teachers spent the greatest amount of time using computers for instructional activities, while college-based teachers tended to use them more for administrative purposes.

At school, computers are used by literacy teachers for...

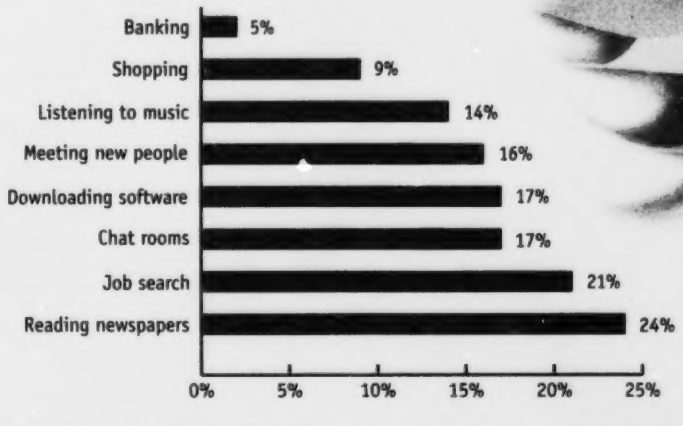


Source: Canadian Council on Social Development. *Literacy and Technology Survey of Practitioners, 1999.*

Literacy students use the Internet for job searches and reading newspapers

Very few literacy students said they used the Internet to do their shopping (9%) or banking (5%). These rates are considerably below the national average. According to a recent Angus Reid survey, almost one in five Canadians have shopped (20%) or conducted financial transactions (21%) via the Internet.[2] The most frequently mentioned uses of the Internet among our respondents were reading newspapers, searching for jobs, downloading software, and participating in chat rooms.

Literacy students use the Internet for...

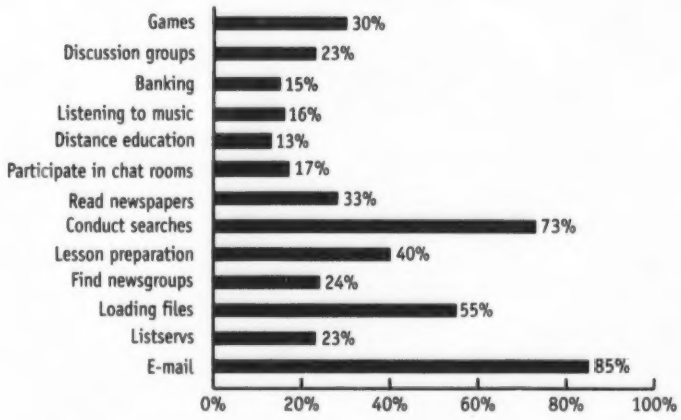


Source: Canadian Council on Social Development. *Survey of Computer Use Among Literacy Students, 1999.*

Literacy teachers surf the Net for information and use e-mail

A majority of literacy teachers surveyed reported using the Internet and e-mail. They said they used computers to conduct searches and download files, as well as to prepare their lessons. The Internet has become a valuable tool for teachers to share ideas and communicate with others in the literacy field. Half of the teachers surveyed were registered with discussion groups in AlphaPlus, an Ontario-based on-line information and resource centre for adult literacy and second language acquisition. As with students, many teachers said they too read newspapers via the Internet and participated in chat rooms. Many teachers reported using the Internet for fun activities such as playing games or listening to music. Compared to students, teachers were more likely to do their banking on-line.

Literacy teachers use the Internet for...

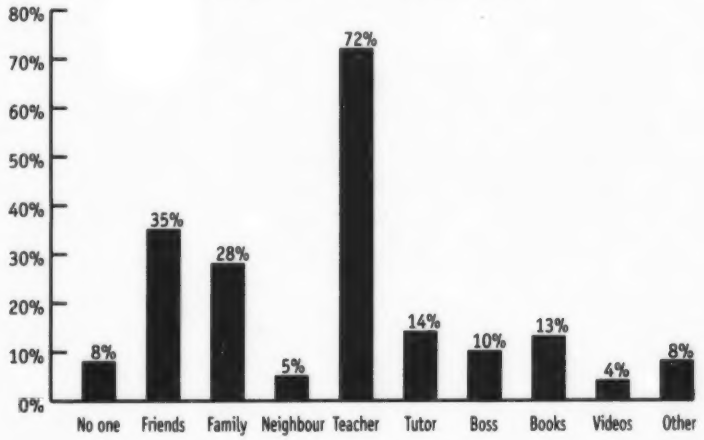


Source: Canadian Council on Social Development. *Literacy and Technology Survey of Practitioners, 1999.*

Most literacy students learn how to use computers from their teachers at school

Fifty-six per cent of students said they learned how to use computers in class. A majority of them (72%) learned about computers from their teachers. Nearly half of the students (45%) believed that their literacy teachers knew "a lot" about computers. Other sources mentioned frequently were friends and family. Thirteen per cent of students said they learned how to use computers by reading books.

Who taught you (students) how to use computers and the Internet?

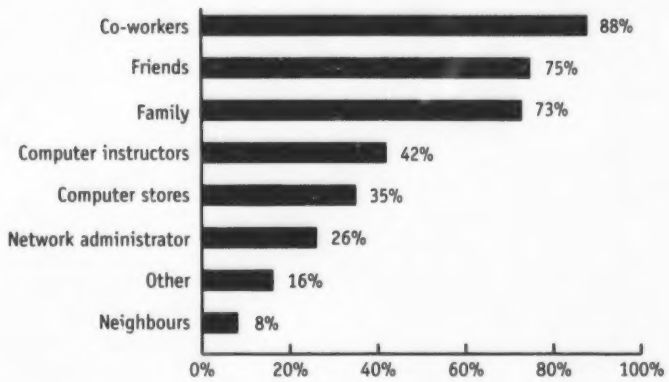


Source: Canadian Council on Social Development. *Survey of Computer Use Among Literacy Students, 1999.*

Literacy teachers get computer assistance from co-workers, friends and family

Literacy teachers said that they turned to their co-workers for help with computers. Friends and family also provided assistance. This is probably because the majority of teachers had friends or family members who owned computers or had Internet access. In comparison, students were less likely to get help from friends and family members. Only half of literacy students said that some of their friends or relatives had access to computers or the Internet. A small proportion of teachers also reported getting help from network administrators, computer stores, and neighbours.

Who provided you (teachers) with computer assistance last year?



Source: Canadian Council on Social Development. *Literacy and Technology Survey of Practitioners, 1999.*

SECTION III

The Advantages of Computers and the Internet in Literacy Learning

Highlights

It is evident from these findings that most of the teachers and students in adult literacy programs have some experience with computers and/or the Internet. What, then, are the advantages and disadvantages of using computer technologies in literacy programs?

We found that literacy students and teachers like computers and the Internet for several reasons:

- Computers were said to provide a new learning environment, allowing literacy students greater control over their learning.
- By using computers as learning tools, literacy students said they gained computer skills that they believed would enhance their employment prospects.
- Computers and the Internet can be used for both work and pleasure.
- Literacy teachers said they found that the Internet provided useful resources for teaching, the three favourite literacy sites being AlphaPlus, NALD and The Training Post.

Our survey respondents also identified several less positive aspects about computer technology:

- Many people, both literacy students and teachers, found computers to be frustrating to manage because of frequent crashes and computer viruses that can destroy files.
- Computers were too expensive for many, especially literacy students.
- Some students were concerned that individuals might be too dependent on machines, withdrawing from human contact.
- Although many types of learning software (learnware) packages were said to be available, few were considered relevant to the reality of adult literacy learners.
- Some teachers and students felt overwhelmed by the plethora of information on the Internet and the difficulties in selecting useful information.

What do you LIKE about computers?

Computer-assisted instruction (CAI) has been touted as having several advantages.[3] Proponents of CAI have argued that computer-assisted instruction provides new ways of learning, making learning more fun and allowing students to set their own pace. In addition, CAI is said to provide fast and immediate help for students.[4] It is also said to enhance self-esteem and employability. The Internet has been praised for its potential to tap into a vast amount of information. Our respondents shared many of these perspectives.

Computers open up new doors to learning

Literacy students' voices:

- "I never used a computer till I came back to school. This has opened up a lot of new areas to explore."
- "I am very familiar with computers. I think students can learn a lot from computers. It is a very useful thing for students who want to learn to read and write."
- "I like the way you learn different things. I can sit down by myself, relax, take it easy and learn."
- "I can use them on my own – good for me. I can learn a lot that way."
- "You didn't have to slow down to look up words."
- "I suffer from the effects of a head injury. My right side (arm, leg) suffers from spasms and a computer would make my writing more legible."
- "They can be used for both work and pleasure."
- "I think computers are great fun. Once you get started on them, it is hard to leave them."

Sixty-four per cent of literacy teachers felt that their students were motivated to learn because of computers. A majority of the teachers (84%) believed that their students were eager to learn to use the PC as a tool. Nearly two-thirds of the students agreed that computers made learning more fun. Thirty-seven per cent said that computers had improved their way of learning. Many felt that computer programs allowed them to learn at their own pace.

Computers improve employment prospects

Literacy students' voices:

- "Most of the jobs now you need to know computers – it is important to know how to use them. You see a lot of people losing their jobs because they haven't got the computer skills."
- "In this day and age, almost everyone needs to know how to operate a computer."
- "Everyone should know how to use a computer. Too many jobs use a computer."

One advantage of using a computer as a learning tool is that adult literacy students will not only learn to read and write, but will also acquire computer literacy skills. This is important, given that we are moving into an increasingly knowledge-based economy driven by information technology. While the students are not being trained in computer literacy, at the very least, the use of computers allows the students to become familiar with hardware and software. As one student commented, even working in grocery stores requires computer skills today. Forty-eight per cent believed that their computer skills would improve their job prospects.

Useful software

In addition to word-processing software programs such as Microsoft Word and Corel WordPerfect, teachers reported using a variety of learning software in their classes for reading, writing, and math. The most frequently mentioned software packages were Plato,

Math Blaster, Spell It (Plus or Deluxe), Perfect Copy, Grammar Gremlin, Typing Tutor, AutoSkills, and the Encarta Encyclopedia. Some teachers also reported using the Speech Assisted Reading and Writing program (SARAW) and software for ESL students.

Below is a list of software programs that teachers found useful:

- Plato
- Spell It
- Math Blaster
- Mathématique
- Perfect Copy
- Typing Tutor
- Encarta Encyclopedia
- Grollier Encyclopedia
- Star1020/Star2010
- Grammar Gremlin
- Grammaire

Some of these programs, such as Plato, were popular among students. As was shown in a study conducted in the U.S., students said they liked Plato because it helped them with their reading.[5] The software products most frequently mentioned by students were WordPerfect, Word, Spell-check/Spell It, Plato, Word Search, and a variety of computer games.

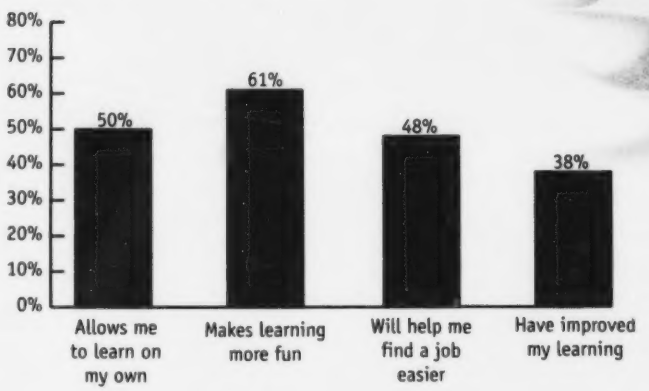
The Internet and e-mail make life more fun

Literacy students' voices:

- "I like the fact that I can connect to such a vast network, without any borders, where information comes and goes freely."
- "I like the fact that information is not censored in any way, and one can read about the facts of politics and history as they are."

Some adult literacy students felt that the best thing about computers is the Internet. Many said they used the Internet to search for information for their school projects. A number of students reported using the Internet to search for information not directly related to their school work. For example, some used the Internet to search for recipes, listen to music or play games. A third of the students said they want to use e-mail to practice reading and writing, as well as to communicate with their friends.

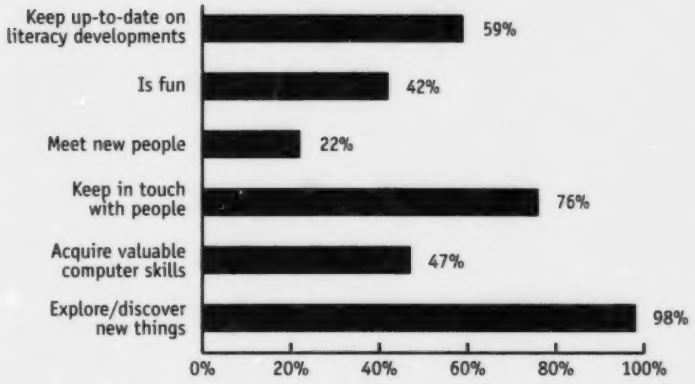
What do literacy students LIKE about computers? 17



Source: Canadian Council on Social Development. *Survey of Computer Use Among Literacy Students, 1999.*

Most literacy teachers reported being enthusiastic about the Internet because it enabled them to explore new things and to keep in touch with the latest developments in the literacy field.

Literacy teachers' views of the Internet



Source: Canadian Council on Social Development. *Literacy and Technology Survey of Practitioners, 1999.*

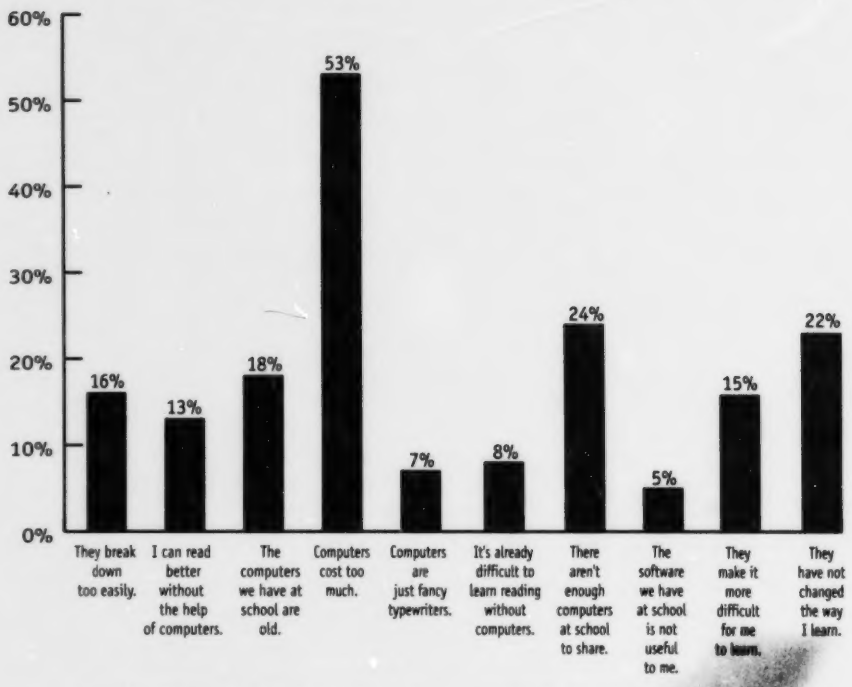
Some teachers answered questions as to their top three favourite literacy sites. They included AlphaPlus (AlphaOntario), NALD, and The Training Post. Another website that teachers found useful was the Human Resources Development Canada (HRDC) website on essential skills and jobs. The following is a sample of other websites that teachers said they liked:

- http://www.openuniversity.com
- http://www.snow.utoronto.ca
- http://www.edu.gov.on.ca
  (Ontario Government's website on new curriculum)
- http://toile.qc.ca (La toile du Quebec)
- http://www.deafcanada.org (GOLD website)
- http://litserver.literacy.upenn.edu
- http://www.dictee.com
- http://www.classroom.ca
- http://www.nald.ca/clo.htm
  (community literacy of Ontario)
- http://ericeece.org (ERIC)
- http://www.deafchat.ca
- http://www/deafcanada/com/dww.org
- http://www/funbrain.com
- http://www/puzzledepot.com
- http://www.apple.com

What do you NOT like about computers?

In spite of the advantages of computers and the Internet, both literacy teachers and students were aware of the drawbacks of the technology. Several concerns emerged in the surveys: the lack of reliability of computers (such as system breakdowns and viruses); the lack of appropriate software for adult literacy students; and the cost of computers. Some people surveyed were also concerned that we are becoming overly dependent on technology.

What literacy students DON'T like about computers



Source: Canadian Council on Social Development. *Survey of Computer Use Among Literacy Students, 1999.*

Computers are frustrating machines

Literacy students' voices:

- "I don't like when the computers get a virus or when they crash and you lose everything."
- "I don't like computers because they break down easily and you lose your work."
- "It can be confusing sometimes if you don't know enough about them."
- "They require too much concentration."
- "I'm scared it's going to blow up."
- "Computers hurt my eyes."

Sixteen per cent of literacy students felt that computers break down too easily. Students were concerned about losing their work due to viruses or system failures. One person said: "I have three pet peeves: computers are not static-guarded; they freeze – that really ticks me off; and power failures – just finishing your essay and all of a sudden, buzz, it's gone." Teachers also said they were concerned about computer stability and reliability. A third of the literacy teachers said that computers were frustrating machines.

Literacy students insisted that computer language should be clearer. In general, they wished to have user manuals written in plain English. As one person said: "Techies have their own jargon. Once explained in plain language, it's O.K."

In addition to technological difficulties, some literacy students expressed concerns about health effects. They reported that computer monitors had some negative effects on health. Some said they experienced eye strain from staring at monitors. This was especially so with small screens.

Computers cost too much

Literacy students' voices:

- "I think computers should be made affordable to the poor class or new immigrants. By exposing them to this new technology, they will be more efficient in the economy, and they will produce more. More access and affordability means a better economy."
- "The cost is what I don't like about computers; it's a choice: buy a computer or pay my rent."
- "The cost of it. I am willing to learn the technology."
- "What I don't like about computers is the high price, the cost of computers and software."
- "The only affordable computer is an out-of-date one, if lucky."
- "I wish to have my own computer but I can't afford it."
- "I would like the purchase of a computer and equipment to be allowed as a tax deduction, as an educational facility for students."

Fifty-three per cent of literacy students and 17 per cent of teachers said that computers cost too much. Nearly half of the literacy students surveyed reported an annual family income of less than $20,000. Computers may be out of reach for them. Buying the hardware is only a part of the cost, though a major one. Several literacy students felt that software is too expensive for them as well. One person said: "I feel that programs shouldn't cost so much. One day, I was downloading a program on the Internet. It was $80 for a CD-ROM. $80 to $90 for a program is way too much."

Computers make people lazy

Literacy students' voices:

- "Don't forget to use dictionaries or ask a human being for help."
- "People become mushrooms staring at a screen."
- "They run everything; when they are down, it takes forever to find out information."
- "Too much importance is placed on them."
- "I believe that computers are very important, but I also feel that a lot of people take advantage of the comfort of sitting while on the computer. Laziness has overcome a certain per cent of these people and I feel that in some ways, computers take the joy out of some lives."
- "I find computers are good global exploration tools but not for the sole purpose of learning. Human interaction is the best form of learning and no CPUs will ever change my view of such."

One in four literacy teachers said they believed that their students preferred to learn *without* the help of a PC. More than one in 10 students (13%) said they believed that they could read better without the help of computers. Some teachers agree that students should not be too dependent on computers for learning. According to some literacy students, computers have made people lazy by making them overly dependent on machines. With spell-check, for example, students might not bother to consult a dictionary. They may become overly dependent on features such as spell-check and grammar checking, and not work hard on their spelling and writing.

Some evident concerns came to light about whether and how computers help with literacy. While nearly 40% of literacy students said that computers had improved their learning, 20% felt that computers had not changed the way they learn. A few students (7%) even regarded computers as fancy typewriters. The rest were not sure exactly what to make of computers. Almost half (48%)

of the literacy students said they wanted to know how computers could help them with reading, writing, and math.

Too many choices, too few appropriate ones

Some literacy students and teachers reported that the amount of information on the Internet sometimes proved to be overwhelming. They said they found it difficult and time-consuming to sift through information to find appropriate items. They also reported that refining searches was challenging. Nearly half of the literacy teachers (46%) said they found it difficult to find what they were interested in. One in five literacy teachers found the Internet too slow and therefore a waste of time.

Although there are a variety of software products available for learning, one in five teachers felt there were too many choices, making it difficult to pick the right one. Seventeen per cent of teachers said that there was a lack of appropriate programs for adult literacy students, as most literacy software products are intended for children. They reported difficulty in finding software products that would appeal to adult literacy students, such as ones that assist with budgeting or career planning. This was found to be especially true in cases where students were at the more advanced literacy levels. One literacy instructor said that students at the basic level classes were less likely to be offended by childish images. While both literacy teachers and students would like to have adult learning software, they also realized that the market for this type of software is small. Nevertheless, as one instructor insisted, "that should not deter or eliminate the need to advocate for an increase in affordable software programs designed for an adult audience."

SECTION IV

Barriers to Computer Use

Highlights

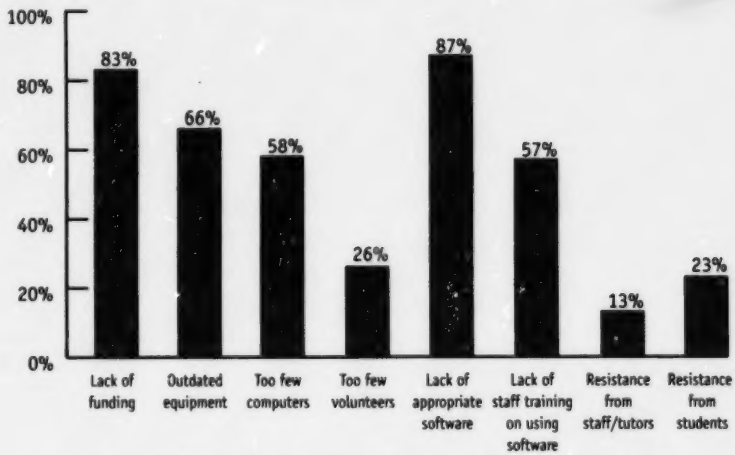
Computers are becoming an integral part of daily life. Many people would like to maximize the potential of technology through greater access and on-going training. In order to achieve this, several barriers must be overcome. This section describes some of the barriers identified by literacy teachers and students.

- Many schools were reported to be using trailing-edge computer equipment that was incompatible with leading-edge software.
- Literacy students said they had difficulty accessing computers after school, preventing them from practicing what they had learned.
- Both literacy teachers and students said they would like to become more computer literate, but did not know which courses were appropriate for them.
- Lack of funding is a major barrier for both literacy students and teachers.

Barriers to computer-assisted instruction (CAI)

A majority of the literacy teachers surveyed (88%) said they believed that their organization supported computer-assisted learning. Computer-assisted instruction, however, presented difficulties for many teachers. If it is to be effectively undertaken, an organization must be willing and able to maintain and upgrade its existing hardware to keep up with new technologies and to be able to maximize the use of new software. This is often difficult, given how quickly technology advances and how costly it becomes. A number of literacy teachers, for example, said they would like to have something as simple as a CD-ROM drive in their computers at school. An organization would also have to be committed to

Challenges in computer-assisted instruction



Source: Canadian Council on Social Development. *Literacy and Technology Survey of Practitioners, 1999.*

upgrading the skills of the literacy teachers. Of course, literacy teachers themselves would also have to be willing to upgrade their skills. Skill development is essential in order to keep up with the fast-paced developments in computer technology. Even if literacy teachers are willing to upgrade their skills, there may not be financial support for training. Financial resources are essential in overcoming the major barriers in computer-assisted instruction.

From basic literacy to computer literacy

Literacy students' voices:

- "I like to learn computers and eagerly search a way to improve computer skills, but I need some help to get access to the computer. Even the computer which my children use at home is not easy for me to use, because I don't know anything about it."
- "I find that English-speakers have better access to computer services in their schools. We'd like to have the same opportunities for French-speakers. English and French are the two official languages."
- "Computers are the way of the future and we'll just have to buckle down and get to know them, especially the Internet and e-mail."
- "Computers are the highway of the year 2000."

Literacy students saw computers as essential to their future. Most students reported that they *wanted* to have additional computer training. One literacy student wrote: "I would like to know more about how the computer programs work. I would like to know how e-mail works. I would like to do more math CD-ROM games."

There were four major areas that literacy students said they wanted to learn more about: basic computer skills, including organizing, saving, and retrieving files, as well as keyboarding; hardware; Internet/communications; and applications such as word processing, Excel and business software.

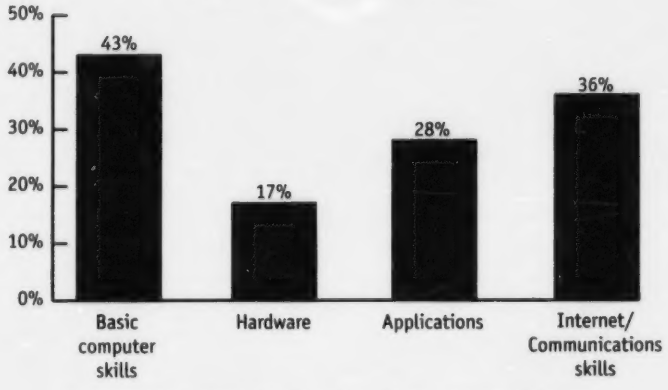
Literacy teachers also reported wanting more training. Fully 84 per cent of literacy teachers said they felt they were "average" or "novice" users of computers; the majority (85%) still wanted to learn more about computers.

Barriers to computer and Internet training

Literacy students' voices:

- "We should have free courses for beginners."
- "I believe that every literacy program needs computers and updated software that does not cost enormous amounts of money so somebody can learn. I feel that if companies do not lower the cost, some of us will never be able to learn at all."

Students want to learn...



Source: Canadian Council on Social Development. *Student Activity Sheet, 1999.*

- "Don't have regular access. People tie up the computers. Some idiot always crashes the system."
- "We don't have too much software in school and it is very slow. There is no Internet."
- "We need more teachers. We need more time on the Internet."
- "The board of education and the Ontario Learner's Council (ONLC) have not given literacy enough support and I feel this is a very big let down for many of the students."

Both literacy teachers and students said they faced similar barriers to computer training, including cost, lack of time and lack of information. They felt that upgrading computer skills was both costly and time-consuming. Thirty per cent of literacy teachers stated that there was no financial assistance available for skills upgrading. This number is actually quite conservative. In a recent Human Resources Survey by Community Literacy of Ontario (CLO), 69 per cent of practitioners rated "funds to cover training costs" as one of the highest barriers to accessing the training they needed.[6] When asked about their agency's professional development budget, 45 per cent of practitioners stated that it had stayed the same over the last several years; only 28 per cent said it had increased.

Four in 10 literacy students felt that computer courses were too expensive. Three out of 10 literacy teachers and less than two in 10 literacy students also said they felt that they did not have the time to take courses. Again, our survey seemed to understate the problem. The Human Resources Survey found that 69 per cent felt that "staff time to participate in training" was a major barrier. In fact, 36 per cent stated that training "is not available locally or regionally." One in 10 literacy teachers and two in 10 students were not sure which courses would be useful for them. Nearly one in five (19%) literacy students said they had become discouraged by their past experiences with computer training.

Since 67 per cent of the literacy students in our survey did not have a computer at home, they did not find it useful to learn how to use software products, since they could not practice them at home. Although most literacy students could access computers at school, 31 per cent said they had very few computers in the classrooms; 24 per cent felt that there were not enough computers to share. In addition, some literacy students said they had difficulties accessing computers in off-class hours. Although they said that public libraries offered computer and Internet access, they also said that use of such facilities was usually limited to a half-hour or one-hour per session. Lack of access to computers was especially a concern for literacy students, given that most of them did not own a computer and many of them could not afford one at the time of the survey.

A number of adult literacy students praised the Beat the Street project at Frontier College. It offers basic literacy instruction and upgrading to street youth and homeless adults.[7] It supports computer-assisted learning by providing computer access to students, developing useful teaching strategies, and selecting appropriate software. One student wrote: "Beat the Street has excellent computers and software." Another one suggested that there be more computers and volunteers in the project.

Discussion and recommendations

Literacy students' voices:

- "Computers are the total new life."
- "The computer is a must in today's world."

Most literacy students and teachers are catching the technology wave with enthusiasm. Students like computers because they are seen as the "way of the future." In addition to achieving basic literacy, students realize that they must become comfortable with computers and other technologies in order to participate in and contribute to their communities.[8] Riding the technology wave, however, is not always easy. There were several concerns raised by literacy students and teachers regarding the use of technology in literacy acquisition.

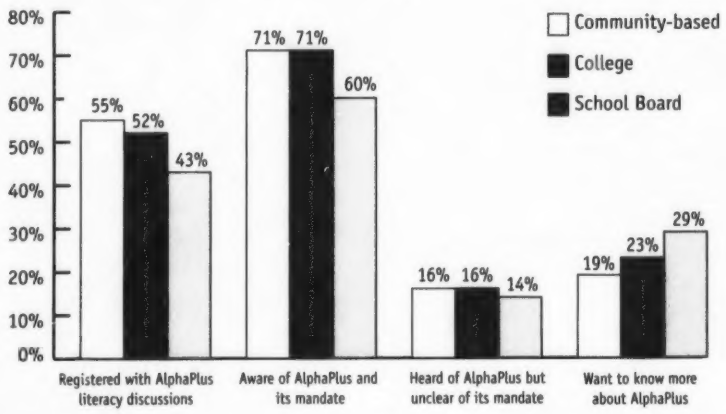
Computer access and Internet connectivity

An important issue for literacy students is access to computers. Unlike teachers, many of these students do not have a computer at home. They rely on schools and libraries for access. It would be helpful if students could use a computer during after-school hours. This would help those who want to work on their résumés, for example, but cannot find time to do so during regular classes.

Even though Ontario has established an electronic infrastructure in the literacy field, literacy students have yet to fully benefit from it. As shown in this study, many students do not have access to the Internet. To maximize its potential, literacy students must be able to fully participate in the new medium. For example, if only a few students have the ability to use the Internet, there is no point in having on-line student discussion groups. Although public libraries provide access to computers and the Internet, these opportunities are often limited. Access to computers and the Internet will remain a key concern for adult literacy learners, unless more means of access can be established. Some suggestions made by the literacy students surveyed included tax breaks for adult literacy students wanting to buy a computer, and free computer courses.

Even though most adult literacy teachers surveyed knew about AlphaOntario (AlphaPlus) and its mandate, a considerable number of them said they wanted to learn more about what the site had to offer. Those working in community and

Familiarity of literacy teachers with AlphaPlus, by literacy program



Source: Canadian Council on Social Development. *Literacy and Technology Survey of Practitioners, 1999.*

college literacy programs were more frequently aware of AlphaOntario than were those working in the school boards. Clearly, more work is needed to make teachers aware of what is available to them.

Hardware/Software: From trailing-edge to leading-edge

Even though most literacy teachers are familiar with computers and the Internet, they still face many barriers in implementing computer-assisted instruction. This is partly because many literacy programs are using trailing-edge computer equipment. For example, some machines do not have a CD-ROM drive or a high-speed processor. It has also been shown that there are not enough computers to share among students. Schools need to be able to update their hardware and software and offer flexible hours of access to computer facilities if this situation is to improve.

Another issue raised by the focus groups concerns the needs of francophone literacy students. Some of them have been using operating systems and software written in English. This is challenging for francophone students, because they have to learn to read and write in their own language, as well as in English.

Literacy students' voices:

- "The Windows environment should be bilingual, to make it easier for francophones to understand it."
- "We need French software products designed for adults."
- "In other areas, apprenticeship services are not offered in French, so we have to be content with what little the ALPHA centres can offer."

Another issue is the lack of appropriate software. Even with technological advancements and the plethora of software on the market, there are still few pieces of educational software that "cater to adult interests and tie directly to the context of learners' lives."[9] We need to develop expertise in adult learnware. One way to deal with this problem is for software developers to consult with adult literacy students to design software relevant to adults. Further research is needed to determine how to maximize technology's effectiveness as a tool within the adult literacy community.

Many literacy teachers would like to have the following types of software:

- Basic math drills such as Math Blaster and grade-school level math for adults;
- Voice-activated dictionaries such as the Oxford Picture Dictionary;
- Multi-media spelling skill exercises;
- Materials for reading and writing skills;
- Programs for teaching English as a second or other language;
- Adult-oriented programs such as for budgeting, career search, and investments.

Training

Many students are willing to use computers and the Internet. They wish to receive further training but are uncertain of where to find it. Even though computer literacy is not the primary goal of computer-assisted instruction, literacy programs could serve as information centres for students. It would be useful to inform students about the types of courses that are available.

Our findings show that literacy students believe that computers can have a positive impact on one's employment prospects. Many students want to go beyond basic literacy to become computer literate as well. This would enable them to gain familiarity with computers and develop confidence in

their ability to use technology.

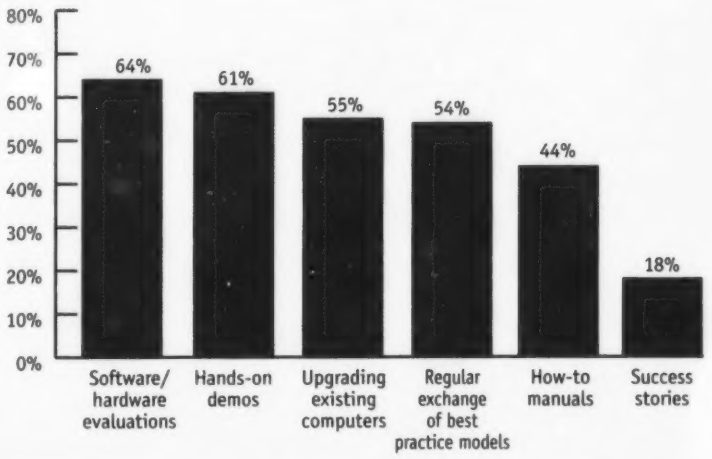
Many literacy teachers would like to learn more about computers as well. In an earlier study conducted among Ontario literacy organizations, only 36 per cent of the literacy programs provide on-going training for employees.[10] This continues to be a concern for teachers in our study. These findings are also supported by the Human Resources Survey. When practitioners were asked what skills or training they needed to have or to learn, 48% said it was computer/Internet training.[11]

Providing training for teachers is important for two reasons. First, most students get computer assistance from their teachers. Second, the benefits of computer-assisted instruction will be maximized when adult literacy teachers use the technology well. A good example of using computers for literacy teaching is The Training Post, established by Laubach Literacy Ontario, because it offers training courses, materials and an alternative means of communication for teachers.

Information exchange

Many teachers also told us what would be useful to them in the future. Two useful tools are software/hardware evaluations and hands-on demonstrations. One example of an information exchange is the publication by the Movement for Canadian Literacy on voice software.[12] This publication lists and evaluates voice software products with respect to the type of computer equipment required and its usefulness. It also lists some helpful websites. It would be useful to provide teachers and students with on-going evaluations of other learnware. We also suggest that there should be a simple user profile or evaluation to assist users in selecting courses and the appropriate software or hardware. Similar to the investor's profile available in major banks, this user profile should help students and teachers to determine their level of computer competence, their needs and their goals.

Information exchanges identified by literacy teachers as useful



Source: Canadian Council on Social Development. *Literacy and Technology Survey of Practitioners, 1999.*

Conclusion

Computers have increasingly become an important part of adult literacy. Though it is not certain whether or not computer-assisted instruction is superior to conventional methods, one thing is clear: computer-assisted instruction offers new ways of learning and provides new skills in the process. Not only do students learn to read and write, they also develop competence in computer literacy. This could be useful in improving the students' self-esteem and their employability. In addition to academic learning, many students use computers and the Internet to expand their general knowledge, as well as for recreational purposes such as playing games and getting updates on music and movies.

In spite of the advantages brought on by computer technologies, many people are frustrated with computer breakdowns. Others fear that people may become lazy and too dependent on machines. Also, computers are too costly for those with low incomes. Even for literacy programs, funding to upgrade existing equipment and for teacher training is not always easy to obtain.

While Ontario has been identified as the "best equipped province" in providing an electronic infrastructure for literacy practitioners and organizations, several barriers to access have been identified in this study, including the lack of up-to-date computer hardware and software, the lack of training and of appropriate software for adults.

Students' interests in computer technology go beyond reading and writing – they are interested in many aspects of computers. Students wish to learn more about computers (hardware), the Internet, and a number of applications. Suggestions for addressing some of these problems include improved access to computers and to the Internet, more appropriate software, and more access to training. And, given that teachers are a critical link to a student's success, their needs should also be taken into account. There should be on-going training and more comprehensive support for literacy teachers.

Endnotes

1 "Needs assessment for an Electronic Infrastructure for the Canadian Literacy Community," Consulting and Audit Canada, 1996.

2 Angus Reid, Press Release, July 5, 1999.

3 *Technology, Basic Skills, and Adult Education: Getting Ready and Moving Forward*, C.E. Hopey (ed.), ERIC Clearinghouse on Adult, Career, and Vocational Education Center on Education and Training for Employment, College of Education, The Ohio State University, 1998.

4 Susan Imel. *Technology and Adult Learning: Current Perspectives*. ERIC Digest, No. 197, 1998.

5 Alberta Vocational College-Calgary, *Computer Assisted Reading Instruction Project: Evaluation Report*, 1998.

6 Community Literacy of Ontario. "Human Resource Survey Results," in *Our Voice: Newsletter of Community Literacy Ontario*, Vol. 2, Issue 3, Fall 1999. (www.nald.ca/PROVINCE/ONT/CLO/NEWSLET/fall99/).

7 *On the Margin: Creating opportunities for learning with computer technology for homeless people*. Frontier College Press, 1998.

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10 Mike Kelly. *Computer Technology Survey of Ontario Adult Literacy Organizations (Final Report)*. Ontario Training and Adjustment Board, Learning and Employment Preparation Branch, Literacy Section, 1995.

11 Community Literacy Ontario. "Human Resource Survey Results," in *Our Voice: Newsletter of Community Literacy Ontario*. Vol. 2, Issue 3, Fall 1999. (www.nald.ca/PROVINCE/ONT/CLO/NEWSLET/fall99/).

12 Learners Advisory Network. *Voice Software: A Comparison of Current Products*. Literacy Technologies Services, Number 1, (Draft), 1998.

Resources

Canadian Literacy Resource Organizations:

THE NATIONAL ADULT LITERACY DATABASE
http://www.nald.ca

The National Adult Literacy Database (NALD) is a federally incorporated, non-profit service organization which provides a single-source, comprehensive, up-to-date database of adult literacy programs, resources, services and activities across Canada. It also links with other services and databases in North America and overseas. NALD gathers, sorts, stores and makes available information on literacy programming, resources, services, contacts, events, awards, funding sources, and resources that can be used in the learning situation. NALD provides adult literacy information to practitioners, teachers, volunteers, program administrators, policy setters and learners across the country through its toll-free "800" number, on the Internet through its website, and through its quarterly newsletter, "Networks". National Literacy Newsletters can be found at: *http://www.nald.ca/newslet/national.htm*. Provincial Newsletters can be found at: *http://www.nald.ca/newslet/province.htm*.

CENTRE ALPHAPLUS CENTRE
http://alphaplus.ca

The Centre serves practitioners and organizations who work in the Deaf, Native, Francophone and Anglophone literacy fields and those working in second language learning communities in Ontario. Their goal is to help users find relevant resources and information to enrich the learning of adults in literacy and second language programs. Services include: a special library collection of more than 35,000 titles, audio tapes, videotapes, educational software (CD-ROMs) and more than 200 periodicals; mini-collections to support remote, isolated and underserved communities in Ontario; AlphaCom, an electronic conferencing and communications system, whose users can share information with others, conduct their organization's business, do research and take part in professional development workshops; delivery and support for distance learning for adult learners through the AlphaRoute project; information services provided by a team of library professionals; outreach to client communities through their Deaf, Native, Francophone, Anglophone and English as a Second Language (ESL) consultants; Help desk support for technical questions and troubleshooting; AlphaBase, a database of information about programs and organizations involved in adult literacy and immigrant language training in Ontario; short bibliographies on selected topics, called Quick-Lists; a quarterly newsletter; and the AlphaPlus Index to web resources.

ABC CANADA
http://www.abc-canada.org

The ABC Canada Literacy Foundation is a national registered charitable organization committed to promoting literacy to the general public and to the private sector. It is a partnership of business, labour, educators and government. The Foundation focusses on public awareness programs, creating and conducting national literacy awareness campaigns, providing promotional support to local literacy groups and conducting research to further the development of a fully literate Canadian population.

LAUBACH LITERACY OF ONTARIO
http://www.trainingpost.org/llo.htm

Laubach Literacy of Ontario (LLO) is a volunteer association dedicated to increasing literacy in Ontario. LLO provides training and professional development opportunities for tutors and trainers within a provincial network of community-based programs as well as assisting in the development of new literacy programs across Ontario. LLO supports the "Each One Teach One" philosophy of peer tutoring and is affiliated with Laubach Literacy Canada, which can be reached at: *http://www.nald.ca/LLC.htm*.

MOVEMENT FOR CANADIAN LITERACY
http://www.literacy.ca

Movement for Canadian Literacy (MCL) is a national non-profit organization representing literacy coalitions, organizations, and individuals from every province and territory. MCL plans to post all its newsletters on its website, with hotlinks to resources. MCL aims to share information it has accumulated on a number of literacy-related themes.

THE TRAINING POST
http://www.trainingpost.org

The Training Post provides training opportunities and resources to volunteer tutors and literacy trainers in Ontario

NATIONAL LITERACY SECRETARIAT
http://www.nald.ca/nls.htm

The National Literacy Secretariat (NLS) works to promote literacy as an essential component for a learning society, and to make Canada's social, economic and political life more accessible to people with weak literacy skills.

ONTARIO NATIVE LITERACY COALITION
http://www.nald.ca/onlc.htm

The Ontario Native Literacy Coalition promotes Native literacy as an essential component of self-determination, a tool to empower the spirit of Native people. It aims to foster and promote a sense of purpose and achievement on a life-long path of learning.

FRONTIER COLLEGE
http://www.frontiercollege.ca

Frontier College is a Canada-wide, volunteer-based literacy organization. It teaches people to read and write and nurtures an environment favorable to lifelong learning. Since 1899, Frontier College has been reaching out to people wherever they are and responding to their particular learning needs. The College believes in literacy as a right and works to achieve literacy for all.

FÉDÉRATION CANADIENNE POUR L'ALPHABÉTISATION EN FRANÇAIS
http://www.franco.ca/alpha

La fédération canadienne pour l'alphabétisation en français is a non-profit organization which strives to promote and deliver access to French literacy and to establish links between French literacy groups and their members. This site is only available in French.

COMMUNITY LITERACY OF ONTARIO
http://www.nald.ca/volman.htm

The Community Literacy of Ontario website contains information on policies and procedures for non-profit sector organizations, sample job descriptions, a quality standard on program - volunteer relations, the economic value of volunteers, board and committee descriptions, volunteer management information, as well as links, resources and other information.

U.S. Literacy Resource Organizations:

NATIONAL INSTITUTE FOR LITERACY
http://novel.nifl.gov

The National Institute for Literacy (LINCS) offers one-stop shopping for related information nationwide, including links to regional and state sites and facts on literacy.

ADULT LITERACY AND TECHNOLOGY NETWORK
http://www.otan.dni.us/webfarm/alt/home.html

The Adult Literacy and Technology Network is a national effort dedicated to finding solutions for using technology to enhance adult literacy. dedicated to finding solutions for using technology to enhance adult literacy.

ERIC CLEARINGHOUSE ON ADULT, CAREER AND VOCATIONAL EDUCATION
http://ericacve.org

The Clearinghouse provides information on vocational and adult education for practitioners and researchers, including Digests which synthesize journal articles on specific topics.

Resource Catalogues:

INTERNET DIRECTORY OF LITERACY AND ADULT EDUCATION RESOURCES
http://literacy.kent.edu/Midwest/Resc/Litdir/index.html

This directory was designed to help literacy practitioners access information that will help them in their work. The intent is to highlight some of the best sites for the adult literacy field.

ADULT EDUCATION TEACHERS' PLACE
http://forum.swarthmore.edu/teachers/adult.ed

This page offers a selection of good sites to visit for information about adult numeracy.

THE ADULT EDUCATION TEACHER'S ANNOTATED WEBLIOGRAPHY
http://www2.wgbh.org/mbcweis/ltc/alri/webliography.html

This collection of website reviews, which has now grown to include over 50 websites, was begun by adult literacy/basic education/ESOL educators in the Boston area in the Spring of 1996. The reviews have been compiled, edited and updated by David J. Rosen, Director of the Adult Literacy Resource Institute, the Greater Boston Regional Support Centre of the Massachusetts System for Adult Basic Education Support.

DR. E'S ECLECTIC COMPENDIUM OF ELECTRONIC RESOURCES FOR ADULT/DISTANCE EDUCATION
http://english-www.hss.cmu.edu/literacy/resources-for-adult-ed.txt

Scholarly discussion lists which are particularly useful to adult/distant educators.

Lesson Plans:

STUDY WEB TEACHING RESOURCES
http://www.studyweb.com/Teaching_Resources/toc.htm

This site aims to help teachers find information and tools for lesson planning and curriculum building. The information is organized by topic and by grade level.

THE ADULT LITERACY CLEARINGHOUSE
http://www.cdlr.tamu.edu/projects/tcall/link2.htm

A series of Clearinghouse links to websites dealing with topics such as assessment/evaluation, ESL, funding, health, numeracy, teaching tools, reading, and technology.

HARNESSING TECHNOLOGY TO SERVE ADULT LITERACY
http://www2.wgbh.org/mbcweis/ltc/alri/integratech.html

The Harnessing Technology web pages aim to help adult literacy education (ABE/GED/ESL/ESOL) teachers and learners to use computers, television, audio and video cassettes, and other electronic technology to help solve learning and instructional problems.

ADULT LITERACY RESEARCH INSTITUTE'S LITERACY
List *http://www2.wgbh.org/mbcweis/ltc/alri/LiteracyList.html*

The Internet resources listed on this site have been reviewed by other adult literacy or ESOL practitioners and/or by David Rosen (Director of the ALRI). Most are websites or electronic lists. Included are linked pages to websites for teachers and students, electronic lists, lesson plans, software reviews and more. In the on-line Internet training resources section are links to excellent tutorials, glossaries, Internet guides and handbooks.

LEARN2.COM
http://www.learn2.com

Learn2.com provides online courses, educational e-commerce, and thousands of free "Learn2s" on useful skills for everyday living.

VIRGINIA ADULT EDUCATION & LITERACY CENTERS
http://www.vcu.edu/aelweb/techpage.htm#General

This site offers advice on how to choose a computer as well as on internet providers, web authoring, and web-delivered instructions for adult.

THE EDUCATOR'S GUIDE TO EVALUATING THE USE OF TECHNOLOGY IN SCHOOLS AND CLASSROOMS
http://www.ed.gov/pubs/EdTechGuide/

A handbook designed for individuals having little or no formal training in research or evaluation.

SURFING FOR SUBSTANCE
http://easternlincs.worlded.org/nelrctech/index.htm

A professional development guide to integrating the Internet into adult literacy instruction.

WEB BASED LESSON PLANS
http://www2.wgbh.org/mbcweis/itc/alri/lessonplans.html

SYSTEM FOR ADULT BASIC EDUCATION SERVICE (SABES)
http://www.sabes.org

This site is primarily intended to provide adult literacy practitioners with useful information. It offers a list of links to several other literacy-related websites.

ADULT EDUCATION AND LITERACY PERIODICALS
http://www.ed.gov/offices/OVAE/daelnews/newsltr.html

This site provides adult education practitioners with information about current articles and resources regarding adult education and literacy. Adult Education and Literacy Periodicals is a selected listing of over 50 newsletters, magazines, and professional journals that are of interest to teachers, administrators, researchers, and others who work with adults. These periodicals cover a range of interest areas, including adults with special learning needs, correctional education, English as a second language, family literacy, legislation, literacy education, research, rural education, volunteers, and workplace literacy. These publications provide up-to-date information about the activities of the organizations as well as articles and news of general interest

PLATO
http://www.plato.com

Plato aims to help teachers offer targeted instruction that meets each adult's specific needs.

THE MATH FORUM
http://mathforum.com

A site that deals with a wide range of topics related to mathematics instruction.

ELEMENTS OF STYLE
http://www.huygens.org/~arne/strunk

A website dealing with English grammar rules.

THE BLUE BOOK OF GRAMMAR AND PUNCTUATION
http://www.grammarbook.com

Everything you need to know about English grammar and punctuation.

BLUE WEB'N
http://www.kn.pacbell.com/wired/bluewebn

Blue Web'N is a searchable database of about 1000 Internet learning sites categorized by subject area, audience and type (lessons, activities, projects, resources, references and tools).

GEM – THE GATEWAY TO EDUCATIONAL MATERIALS
http://www.thegateway.org

This site aims to provide one-stop access to high quality lesson plans, curriculum units and other education resources on the net

FLASHBASE FORMS
http://forms.flashbase.com

Flashbase is a website that offers interactive forms that can be customized from pre-designed templates (including several in the education category) or built from scratch. Possible uses include conducting surveys, quizzes, questionnaires, creating web-based lesson plans, collecting data and managing registration. Flashbase hosts online forms on their web site, so that people who don't have their own website can use the resource. Users can give the web address to students, who can access it to take a quiz, survey, etc. Flashbase also helps the form's author collect and manage the data submitted by all the people who use their form.

FILAMENTALITY
http://www.kn.pacbell.com/wired/fil

Filamentality, developed by Packard Bell, aims to guide teachers step-by-step through a process of creating and posting online lesson plans that make use of web resources

Software Guides:

NORTHWEST REGIONAL LITERACY RESOURCE CENTRE 1998 SOFTWARE BUYERS GUIDE
http://literacynet.org/nwrlrc/buyersguide/home.html

This site offers reviews of new software from educational software publishers. Reviewers used the programs with their students for several weeks, recorded their comments, and rated the software based on the criteria set during the training sessions.

PROJECT SOFTWARE
http://www.wcs.k12.va.us/departments/psoft

This website aims to provide adult teachers, tutors or administrators with assistance in identifying appropriate software for their programs. Project Software provides for the field testing and evaluation of educational software by adult students and teachers to identify programs that are effective and that enhance learning.

Recommended Books:

Roeher Institute. A *Straightforward Guide to the Internet*. Toronto: Toronto: The Roeher Institute, 1997.

O'Hara, S., Wempen, F., Bobola, D. and Guilford, E. (1997) *The Big Basics Book of Windows 95*. Indianapolis, IN: QUE Corporation. Second Edition.

Plumley, S. (1997) *10 Minute Guide to Windows 95*. Indianapolis, IN: QUE Corporation. Second Edition.

Minatel, J. (1995) *Easy World Wide Web with Netscape*. Indianapolis, IN: QUE Corporation.

NETLIFE Magazine by Sympatico

AVAILABLE FOR BORROWING AT CENTRE ALPHAPLUS:

Cahoon, Brad.ed. *Adult Learning and the Internet*. San Fransisco: Jossey-Bass Publishers, 1998.

Lankes, Virtual Dave. *The Bread and Butter of the Internet: A Primer and Presentation for Educators*. Syracuse: ERIC Clearinghouse in Information and Technology, 1996.

Fawcett, Shaun. *Internet Basics Without Fear: Quick Start Guide For Becoming Internet-Friendly In Just A Few Easy Steps*. Montreal: Final Draft Publications, 1999.

Rea, Cherry. *Internet Manual For Literacy And Numeracy Co-ordinators And Tutors*. Canberra (Australia): Department if Employment, Education, Training and Youth Affairs, 1997.

Haughey, Margaret Lagan. *Networked Learning: The Pedagogy of the Internet*. Montreal: Chenelière/McGraw-Hill, 1998.

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Cowles, Susan K. *Teaching And Learning With Internet-Based Resources: A Set of Lesson Plans And Activities*. Washington: National Institute for Literacy, 1997. (This resource is available on-line at *http://www.nifl.gov/susanc/inthome.htm*)

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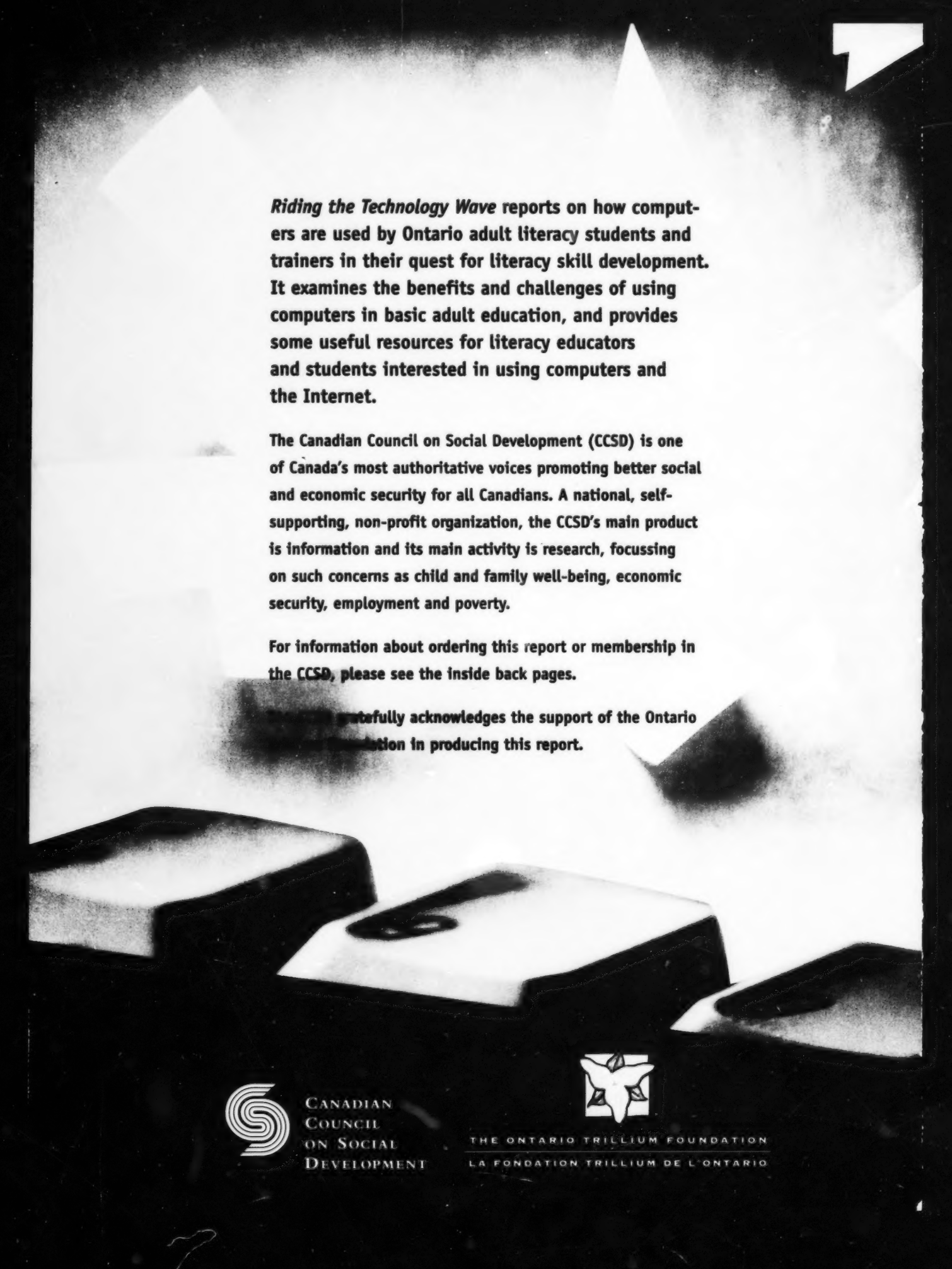

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